

PATENT ABSTRACTS OF JAPAN

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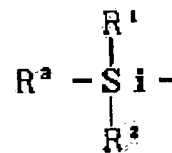
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(54) LIP COATING AGENT

(57)Abstract:

PURPOSE: To obtain a new lip coating agent having large long acting properties of cosmetic effect and large effect capable of preventing adhesion of lip stick to other things, free from irritation in coating and having refreshing feeding of use and high oxygen permeability.

CONSTITUTION: This lip coating agent contains at least one kind of polymer selected from polyvinyl alcohol, a nonionic natural polysaccharides and their derivatives and having a triorganosilyl group expressed by the formula (R1 to R3 are 1-6C hydrocarbon groups) as a substituent group on the side chain.



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2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] this invention relates by applying from it to the new lip coat agent which improves the imprint-proof nature which is the effect which prevents the adhesion to lip stick food etc., and the durability of the makeup effect containing water resistance about the lip coat agent which comes to blend the polymer which has a trio lukanot silyl machine in a side chain, after applying the usual lip stick in more detail.

[0002]

[Description of the Prior Art] Conventionally, the lip stick overcoat aiming at imprint-proof nature or the durability of the makeup effect was what blends a high molecular compound, for example, a cellulose system high molecular compound, a vinyl system resin, existing acrylic resin, an existing silicone oil, etc. using a drainage system or an alcohols solvent (refer to JP,61-12883,B). However, about the drainage system, volatilization of moisture took time, the resins currently used further conventionally are insufficient water repellence and in respect of water resistance, imprint-proof nature and durability cannot be satisfied [there is a fault that the skin irritation to a lip has the fault that there is a feeling of stickiness, about an alcoholic system], and there was a trouble that lip stick discoloration according [and] to a resin arose.

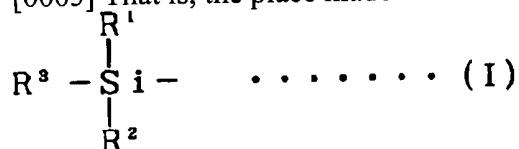
[0003]

[Problem(s) to be Solved by the Invention] this invention solves the aforementioned trouble, obtains the lip coat agent which has high water resistance, oil resistance, and abrasion resistance (imprint-proof nature), and is excellent in a living body stimulative small feeling of use, and is made utterly.

[0004]

[Means for Solving the Problem] In order to solve the aforementioned technical problem, as a result of inquiring wholeheartedly, by using the polymer which has a specific trio lukanot silyl machine as a substituent in a side chain, this invention persons found out that the lip coat agent made into the purpose was obtained, and resulted in this invention.

[0005] That is, the place made into the summary of this invention is a general formula. [Formula 2]



(-- the inside R1 and R2 of a formula and R3 are the hydrocarbon groups of the carbon atomic numbers 1-6 which may differ even if the same It is in the polyvinyl alcohol and the non-ionicity natural polysaccharide which has water solubility which has as substituents the trio lukanot silyl machine shown by) in a side chain, and the lip coat agent characterized by containing at least a kind of polymer chosen from those derivatives as a component.

[0006] this invention is explained in detail below. The aforementioned polymer which has as a

substituent the trio lukanot silyl machine used for this invention in a side chain has the property which dissolves in various waxes and oil well, dissolves in hydrocarbons, such as a hexane, toluene, and a liquid paraffin, and is further dissolved also in a polar low silicone oil, and is excellent in compatibility with various matter. Moreover, the polymer which has this trio lukanot silyl machine as a substituent in a side chain gives the polymer coat with good water resistance which is excellent in film forming ability and has intensity, and also has the advantage that oxygen permeability and transparency are still higher. [0007] The raw material polymer for using it by making a trio lukanot silyl machine into a substituent in this invention, introducing into a side chain is polyvinyl alcohol, the non-ionicity natural polysaccharide which has water solubility, and these derivatives, and it is the polymer in which all contain the hydroxyl group which a trio lukanot silyl machine is introduced and can form the silyl ether.

[0008] As non-ionicity natural polysaccharide which has water solubility here For example, starch, a pullulan, guar gum, locust bean gum, etc. can be mentioned. As those derivatives, alkyl groups, such as a methyl group, an ethyl group, and a propyl group, A hydroxyalkyl machine and/or carboxymethyl machines, such as a hydroxyethyl machine, a hydroxypropyl machine, and a hydroxy butyl, Although the partial etherification object replaced by carboxy alkyl groups, such as a carboxy ethyl group, and the partial esterification object replaced by the row by aliphatic acyl groups, such as an acetyl group, a propionyl machine, and a BUCHIRIRU machine, are illustrated Starch, pullulans, and those hydroxyalkyl derivatives are desirable from solvent solubility, coat formation nature, and the flexibility of a coat.

[0009] Moreover, as a polyvinyl alcohol derivative, a vinyl ether vinyl alcohol copolymer, an ethylene vinyl alcohol copolymer, a vinyl acetate vinyl alcohol copolymer, etc. can be mentioned, for example.

[0010] It sets to the trio lukanot silyl machine in which the polymer used for this invention is shown by the aforementioned general formula (I) which it has in a side chain, and is R1 -R3. It is the hydrocarbon group of the carbon atomic numbers 1-6. to this The alkyl group of a straight chain or branched chain, for example, a methyl group, an ethyl group, a propyl group, An isopropyl machine, a butyl, a tert-butyl, a pentyl machine, a hexyl machine, etc.; A cycloalkyl machine, For example, a cyclopentyl group, a cyclohexyl machine, etc.; although the ARUKENIRU machine of a straight chain or branched chain, for example, a vinyl group, an allyl group, an isopropenyl machine, 1-butenyl group, 1-pentenyl machine, a 1-hexenyl machine, etc. are illustrated the carbon atomic number of these hydrocarbon groups increases -- alike -- following -- a hydrocarbon group -- bulk -- since it becomes difficult to become high and to introduce effectively in polymer, the alkyl group under above-mentioned instantiation especially a methyl group, an ethyl group, a propyl group, and a tert-butyl are desirable As an example of the trio lukanot silyl machine shown by the general formula (I) which has such a hydrocarbon group, a trimethylsilyl machine, a triethyl silyl machine, a TORIPURO pill silyl machine, a dimethyl propyl silyl machine, a butyldimethylsilyl machine, a tert-butyldimethylsilyl machine, etc. can be mentioned.

[0011] As for the trio lukanot silyl machine shown by the general formula (I), it is desirable to contain an average of 40% of the weight or more in the polymer used. When compatibility with various waxes, oil, and a hydrocarbon falls that the content of a trio lukanot silyl machine is less than an average of 40 % of the weight, and own water resistance of polymer and oxygen permeability also decrease and this is applied to a lip coat agent, there is a possibility that the expected effect may produce the problem that durability becomes inadequate small.

[0012] As the manufacture method of polymer of introducing into raw material polymer the trio lukanot silyl machine shown by the general formula (I), and using it for this invention, the sililation reagent corresponding to a necessary trio lukanot silyl machine can be used. For example, the method using the trio lukanot crawl silane-pyridine system which has a hydroxyl group and which is known as a method of silanizing polymer, the method using a trio lukanot silyl acetamide-N-methyl pyrrolidone system, and the method using a hexa organosilyl disilazane-pyridine system are mentioned. Moreover, the method using the trio lukanot silyl perchloric acid ester known as a method of silanizing alcohol etc. can be used. However, especially the manufacture method is not limited in this invention.

[0013] although the loadings of the polymer which it has in a side chain by making a trio lukanot silyl machine into a substituent in the lip coat agent of this invention may be suitably changed according to

the pharmaceutical form of the lip coat agent made into the purpose, and a performance -- desirable -- the inside of the lip coat agent whole quantity -- it is more preferably chosen from 1 - 30% of the weight of the range 0.5 to 50% of the weight There is a possibility that forming [of a polymer coat] becomes being the loadings below this inadequate, an imprint-proof performance and durability ability fall, the balance calyx gap with other components and compatibility will fall if this is exceeded, or the clean feeling of use may fade.

[0014] The lip coat agent of this invention uses the polymer which it generally has in a side chain by making a trio luanot silyl machine into a substituent in the state where it dissolved in the solvent. Although the solvent used is altogether usable if the polymer which has a trio luanot silyl machine as a substituent dissolves, silicone oils, such as dimethylpolysiloxane from a viewpoint a feeling of use, living body stimulative, and toxic [to a living body] and a methylphenyl polysiloxane, are desirable. Furthermore, since it becomes a fault that volatilization of a solvent takes time at the time of use of a lip coat agent, or stickiness will be sensed by the time it volatilizes, the volatility of the solvent to be used has the good, comparatively higher one. The dimethylpolysiloxane of 10 or less csts, octamethylcyclotetrasiloxane, and decamethyl cyclopentasiloxane have [especially the silicone oil as a solvent] desirable viscosity from this. Moreover, animal and vegetable oils, such as alcohols, such as ethanol, and a jojoba oil, are also mixable in the range in which compatibility is not reduced.

[0015] To the lip coat agent of this invention, high polymers, such as various powder, such as organic, inorganic, and a pearl agent, a pigment and a solid, a half-solid or liquefied oil content, silicone resin, a cellulosic, and an alkyd resin, a plasticizer, an ultraviolet ray absorbent, perfume, antiseptics, etc. are [besides the solvent which mentioned above the trio luanot silyl machine of the aforementioned indispensable component in addition to the polymer which makes a substituent and it has in a side chain] also mixable according to the purpose.

[0016]

[Example] Next, the synthetic example of the polymer which has a trio luanot silyl machine in connection with this invention as a substituent in a side chain, and the example which used the obtained polymer for the lip coat agent explain this invention concretely. In addition, this invention is not limited by these.

[0017] (Synthetic example 1) pullulan [-- Hayashibara Business-affairs tradename [:P] After dissolving I-20]162g in N-methyl pyrrolidone 810g at 100 degrees C, N and O-screw trimethylsilyl acetamide 610g and toluene 810g were added, and it stirred at 110 degrees C for 5 hours. then, pour out reaction mixture into a methanol and deposit polymer -- it *(ed) When operation of having remelted in toluene further, having deposited with a methanol, and *(ing) the obtained polymer was repeated twice and carried out the vacuum drying at 60 degrees C, the 307g trimethylsilyl pullulan was obtained. Si content of the obtained polymer was 20.9 % of the weight (54 % of the weight as a trimethylsilyl machine in polymer).

[0018] (Synthetic example 2) After dissolving starch [product [made from Japanese Dregs Chemistry], and tradename: NSP-M] 115g in N-methyl pyrrolidone 500g at 100 degrees C, N and O-screw trimethylsilyl acetamide 546g and toluene 500g were added, and it stirred at 110 degrees C for 5 hours. Then, refining and dryness were performed by the same method as the synthetic example 1, and 201g trimethylsilyl starch was obtained. Si content of the obtained polymer was 21.2 % of the weight (54 % of the weight as a trimethylsilyl machine in polymer).

[0019] (Synthetic example 3) hydroxypropyl-izing -- after dissolving starch [product [made from Matsutani Chemical industry] and tradename: unique gum H-17] 115g in N-methyl pyrrolidone 500g at 100 degrees C, N and O-screw trimethylsilyl acetamide 527g and toluene 500g were added, and it stirred at 110 degrees C for 5 hours Then, refining and dryness were performed by the same method as the synthetic example 1, and 173g trimethylsilyl hydroxypropyl starch was obtained. Si content of the obtained polymer was 20.1 % of the weight (52 % of the weight as a trimethylsilyl machine in polymer).

[0020] (Synthetic example 4) polyvinyl alcohol [Shin-Etsu Chemical Co., Ltd. make and tradename: C-25] 132g -- pyridine 1320g -- it distributed to inside, and tert-buthyldimethyl chlorosilane 904g was

dissolved in toluene 860g, and it added, and stirred at 120 degrees C for 6 hours After cooling, except having diluted reaction mixture with toluene 800g, refining and dryness were performed by the same method as the synthetic example 1, and 301g tert-butyldimethylsilyl polyvinyl alcohol was obtained. Si content of the obtained polymer was 15.4 % of the weight (63 % of the weight as a tert-butyldimethylsilyl machine in polymer).

[0021] The property of the polymer obtained in the synthetic examples 1-4 was as in Table 1. In addition, the film with a thickness of about 50 micrometers was created and used for tensile strength, a pace of expansion, and measurement of oxygen permeability from the polymer solution.

[0022]

[Table 1]

		合成例 1	合成例 2	合成例 3	合成例 4
トリオルガノシリル基を側鎖に置換基として有するポリマーの種類		トリメチルシリルプルラン	トリメチルシリルスターチ	トリメチルシリルヒドロキシプロピルスターチ	tertブチルジメチルシリルポリビニルアルコール
溶剤溶解性	アセトン	膨潤	膨潤	膨潤	溶解
	トルエン	溶解	溶解	溶解	溶解
	軽質流動パラフィン	溶解	膨潤	膨潤	膨潤
	オクタメチルシクロテトラシロキサン	溶解	溶解	溶解	溶解
引張強度 (kg/cm ²)		120	250	220	300
伸び率 (%)		3	3	4	5
酸素透過性 *		8.8×10^{-9}	4.3×10^{-9}	3.0×10^{-9}	1.2×10^{-9}

$$* : \frac{\text{cm}^3 (\text{STP}) \text{ cm}}{\text{cm}^2 \text{ sec cmHg}}$$

[0023] (Example 1)

1. Trimethylsilyl pullulan (synthetic example 1) 20.0% 2. octamethylcyclotetrasiloxane 79.5% 3. squalane 2 and 3 are added to 1 0.5%, and it mixes uniformly, and considers as a product.

[0024] (Example 2)

1. Trimethylsilyl starch (synthetic example 2) 20.0% 2. octamethylcyclotetrasiloxane 79.5% 3. squalane 2 and 3 are added to 1 0.5%, and it mixes uniformly, and considers as a product.

[0025] (Example 3)

1. Trimethylsilyl hydroxypropyl starch (synthetic example 3) 20.0% 2. octamethylcyclotetrasiloxane 79.5% 3. squalane 2 and 3 are added to 1 0.5%, and it mixes uniformly, and considers as a product.

[0026] (Example 4)

1. tert-butyldimethylsilyl polyvinyl alcohol (synthetic example 4) 20.0% 2. octamethylcyclotetrasiloxane 79.5% 3. squalane 2 and 3 are added to 1 0.5%, and it mixes uniformly, and considers as a product.

[0027] (Example 5) It will be as follows if this invention article and the conventional article of an ethyl-cellulose system which were obtained in the examples 1-4 are compared in an effect.

the <evaluation method> - with sufficient organoleptics by the woman (n= 20) -- a little good : -- O -- a little good - usually -- : -- ** -- poor : x. [0028]

[Table 2]

	従来品	実 施 例			
		1	2	3	4
艶	△	○	○	○	○
他の物への転写性	△	○	○	○	○
口紅への親和性	○	○	○	○	○
柔軟性	×	○	△	△	○
透明度	△	○	△	△	○
乾燥速度	○	○	○	○	△
耐水性	△	○	○	○	○
口紅の保護効果性	×	○	○	○	○
皮膚刺激性	×	○	○	○	○
味（苦み）	×	○	○	○	△

[0029]

[Effect of the Invention] according to this invention, by using the polymer which has the aforementioned trio liganot silyl machine as a substituent in a side chain as a major component of a lip coat agent, water resistance, oil resistance, and imprint-proof nature are good, it has the clean feeling of use and the large lip coat agent which are the durability of the makeup effect and the antisticking effect to other lip stick objects is obtained Moreover, the aforementioned polymer used for this invention does not produce discoloration of lip stick coloring matter, since it has high oxygen permeability, it does not bar skin respiration, and since it can use an volatile silicone oil as a main solvent, it also has the advantage that there is stimulative [no / at the time of an application].

[Translation done.]